

# NOC Daily Operations

## Introduction

Network Operation Centers (NOCs) are always under a great pressure to meet both technical and business services demands. In the past several years NOCs have become a more crucial part of the organization, taking on more tasks and responsibilities.

In NOCs, technological challenges arrive at unexpected times, and unforeseen problems always pop up. So by employing the best practices, using the most appropriate tools, and optimizing your processes and knowledge proper service delivery is attained and business goals are met.

## What I use for efficient running of the NOC

### 1. Tools

Tools are an essential element in NOC management. But they are also a key element for improvement, tools keep my team aligned with the most updated information needed for incident handling and also help my team gain control over all tasks, while positioning my NOC as an exclusive IT resource for the whole business.

Below are some of the tools I use;

#### **Ticketing system**

A ticketing system enables me to keep track of all open issues, according to severity, urgency and the person assigned to handle each task right from the help desk. Knowing all pending issues will help me prioritize the shift's tasks and provide the best service to our customers.

#### **Knowledge base**

I usually keep one centralized source for all knowledge and documentation that is accessible to my entire team. This knowledge base is kind of a database with reports, escalations, SLAs, network diagrams, photos of field incidents etc, and it is continuously updated with experiences and lessons learned for future reference and improvements especially with recurring problems.

#### **Reporting and measurements**

I use this to create reports on a daily and monthly basis. A daily report should include all major incidents of the past 24 hours and a root cause for every resolved incident. This report is useful and essential for the stakeholders. It also keeps the rest of the IT department informed about the NOC activities and of major incidents. Compiling the daily reports into a monthly report helps me measure the team's progress and this helps me with appraisals and measuring the general performance of my team. Reporting also shows areas where improvements can be made or indicate any positive or negative trends in performance.

#### **Monitoring**

There are two types of monitoring processes that I use at the NOC:

- **Infrastructure monitoring**, which can consist of the servers, the network or the data center environment whereby monitoring is focused on availability, performance, capacity usage among others.
- **User experience monitoring**, which simulates user behavior and activities in order to replicate problems and find the most effective solutions.

#### **Process Automation**

Processes save significant time on repetitive, daily tasks, and frees up time for more strategic projects. This also empowers a Level-one team to deal with tasks that otherwise may require a Level-two team. Some examples include password reset, disk space clean-up, restart services etc.

### 2. Processes

Below is the overview of the critical operational processes that should be implemented for effective and repeatable results.

#### **Escalation**

An escalation matrix ensures that all team members are clear on the proper protocol and channels for escalating issues. This matrix also includes all areas and skills covered by the NOC and the people who are trained to cover those areas.

The escalation matrix also details time frames on which the fault or an incident should be attended to and hence resolved.

### **Prioritization**

The process of prioritizing incidents is clearly defined. Incidents are never handled on a first come, first served basis. Instead, the shift staff or NOC Manager prioritizes incidents and cases based on the importance and impact on the business. Issues that have a greater impact on the business are usually handled first.

Understanding the prioritization of incidents in terms of their business impact is always part of my NOC training and knowledge sharing agenda. I have made sure the entire team is familiar with the NOC “high priority” projects, and have an understanding of what signifies a critical incident, such as the temperature rising in the data center, a major network cable breaking or a service going down.

Clearly the shift leader should be able to determine that an incident that jeopardizes the entire data center has a higher priority than a request to verify why an individual server is down.

### **Incident handling**

The process of handling incidents applies both to NOC operators and shift managers. Both roles should be familiar with the specific process of handling incidents with the greatest impact on users.

Incident handling process should cover issues such as:

☐ Full technical solution, if available.

☐ Escalation of issue to appropriate personnel.

☐ Notification of other users who may be directly or indirectly affected by issues.

☐ ‘Quick solution’ procedures or temporary workarounds for more complex problems that may take longer to completely resolve.

☐ Incident reporting. An incident report, completed once the incident is resolved, helps improve the service when the next incident occurs, or may also prevent the recurrence of the same incident. This comes in form of an RFO (Reason For Outage)

From the above critical processes I also have routine processes that are used by NOC personnel on a daily basis based on the requirements or circumstances;

**1. Fault Notification process-** every time there is a service impacting fault there must be notifications to various stakeholders in form of emails, text messages and phone calls with details of the fault i.e reference ticket, fault type, location, severity and ETR (estimated time of resolution)

Steps taken in this process;

- ✓ Fault noted by NOC through the monitoring process
- ✓ Quick methodical troubleshooting is done to verify the type of fault
- ✓ If the problem is solved by the NOC, then the process ends else a ticket is logged
- ✓ O&M and customer care teams are notified with details of ;Time, Location of fault, Trouble Ticket number and ETR for customer care if available for further communication to end users.

**2. Fault resolution process-** this involves details of remedial action taken to resolve fault, time taken (total outage time), and actual cause of fault among other things.

Steps taken in this process;

- ✓ NOC keeps in touch the field teams given any fault while updating all stakeholders
- ✓ Field teams confirm completion of works
- ✓ NOC does tests to affirm the state of the network as observations continue

- ✓ NOC sends communication to Field team confirming instability/stability to the network
- ✓ If the network is stable ,NOC communicates to field team so they can vacate the site
- ✓ Logged ticket is closed
- ✓ NOC notifies customer care with details of the fault; Location ,cause ,remedial action taken, Time the fault was solved and the type of resolution(temporary/permanent)
- ✓ Communication is sent through to all stakeholders of network uptime and reason for outage report.

**3. Network/System change request process-** in an event there needs to be a change on the network, there should be a procedure taken with details on the impact of the change, resources to be used, schedule for the change and if this change is feasible. This should be accepted by all stakeholders.

Steps taken in this process;

- ✓ Communication is made to NOC by a party that would like to change part of the network
- ✓ NOC assesses the effects of the exercise and affirms or delays the exercise inclined to the severity of the exercise to the network
- ✓ A ticket if necessary is logged for the change
- ✓ NOC communicates to all stakeholders about the change entailing all necessary details
- ✓ The party responsible communicates 5 minutes before change takes place.
- ✓ Updates are availed to the NOC during the course of the exercise until it is done
- ✓ Tests are done by the NOC(If possible) to verify that the network is not affected
- ✓ Logged ticket is closed
- ✓ NOC communicates to all stakeholders about the details of the change
- ✓ NOC documents the details of the change in their database for future reference

**4. Client provisioning process-** steps taken for a new client to be commissioned on to the network

Steps taken in this process;

- ✓ NOC receives a job request from accounts instructing my department to provision a client with details of the service
- ✓ NOC notifies the relevant departments of receipt of the request and requests the implementation team to proceed with the installation
- ✓ NOC monitors progress of the process till the client is finally commissioned
- ✓ NOC notifies accounts of the completion and billing process is triggered
- ✓ NOC enters client details to central repository for future reference

**5. Client decommissioning process-** steps taken for a client churning

Steps taken in this process;

- ✓ NOC and accounts makes a monthly reconciliation of clients and their services
- ✓ NOC sends inactive clients to accounts for verification if they are still interested in the service or are still paid up clients
- ✓ Accounts responds to NOC with comments if they are debtors, suspended accounts, legal accounts etc
- ✓ Depending on the status the NOC disconnects/decommissions the client off the infrastructure
- ✓ NOC sends details of decommission to the accounts to finalize this process

**6. Site maintenance process-** this entails of what is going to be done, what services will be affected and for how long

Steps taken in this process;

- ✓ Communication is sent to the NOC by the maintenance team about a specific maintenance exercise at a particular site with details of the maintenance.

- ✓ Assessment is done by the NOC on whether it should be immediate or delayed as per the current situation of the network/severity.
- ✓ Ticket is logged for the exercise
- ✓ NOC proactively communicates to all stake holders about the imminent maintenance entailing all necessary details
- ✓ The maintenance team communicates to the NOC 5 minutes before the exercise commences
- ✓ The NOC communicates to all stakeholders as soon as the exercise commences
- ✓ Periodic updates are availed to the NOC during the course of the exercise until its climax.
- ✓ The NOC communicates to stakeholders of progress of the maintenance
- ✓ On completion of the exercise, tests are done to verify that the network is in the proper working state
- ✓ Logged ticket is closed
- ✓ NOC communicates to all stakeholders about the details of the concluded maintenance exercise
- ✓ NOC documents and stores the details of the exercise for future reference.

**7. Datacenter access process-** this gives details of who has permission to access the datacenter, the reason for access and the time, usually a form a filled and accepted or denied.

Steps taken in this process;

- ✓ Client with a co-location service writes an email to the NOC requesting for access to the datacenter entailing details of what they want to do and the time they would want to be designated
- ✓ NOC assesses the request to see if it can be affirmed given the prevailing circumstances
- ✓ NOC replies with either a positive or negative response; if positive client is required to come with a work permit and if negative NOC gives the reason in conjunction with a counter proposal for access to the client
- ✓ Client shows up at the reception where communication is made to the NOC to avail a resource to grant access to the data center

## **8. Help Desk to NOC escalation process**

Steps taken in this process;

- ✓ Issue raised to NOC department from Customer care
- ✓ Its either raised through a phone call or email
- ✓ If raised through phone call, a reply is given accordingly either answering to any inquiries or troubleshooting
- ✓ If raised through mail which is usually a critical scenario, it is received by tier 1 and if resolvable a reply is sent back through mail. This is usually a report
- ✓ If not resolvable by tier 1, it is escalated to tier 2
- ✓ If resolvable by tier 2 a reply is sent back to Cc else escalated to tier 3
- ✓ Final stage in the NOC where every issue is resolved and feedback sent back to Cc

## **Emergency cases;**

This type of Incident or emergency situation can be described as one that causes, or has the potential to cause a total network outage in one or more networks.

**Escalation requirements:**

The NOC immediately notifies the field operations team of the critical incident for immediate attention, I usually call top management i.e the CTO and CEO and inform them of the current state of affairs and what is being done to resolve the issue.

Communication is immediately sent to clients informing them of the outage or network fault and letting them know all efforts are being made to have the service restored. My NOC team is responsible for ensuring that affected customers receive a status update at 30-minute intervals until the incident is resolved. A full incident report will be provided within 24 business hours after resolution.